SERVICE MANUAL

ST-887R

Direct Drive Full Auto TURNTABLE

Sherwood

Specifications

MOTOR AND TURNTABLE SECTION

Drive System	Direct Drive system, Full-Automatic
Motor	DC FG Servo Motor
Speed	33-1/3R.P.M, 45R.P.M
Wow & Flutter	Less than 0.06% WRMS
Rumble or S/N	Better than 65dB(DIN-B)
Turntable Platter	310mm aluminium alloy die-cast
Range of Pitch Control	±3% Min

TONEARM SECTION

Effective Length	225mm
Offset Angle	24.5degrees
Tracking Error	+ 2.6, — 1 degrees
Overhang	18.7mm

CARTRIDGE SECTION (OPTION)

Type	Straight Static Balance
Frequency Response	20～20,000Hz
Output Voltage	3.5mV at 1KHz 3.54cm/sec
Channel Balance	Within 3dB at 1KHz
Channel Separation	More than 18dB at 1KHz
Load Resistance	47K
Weight	Min 4g～Max 8g
Stylus Pressure	Min 2g～Max 2.5g

OPERATION

Cueing	Button push
Start	Push switch
Stop	Push switch
Repeat	Button push
Size	Button push
Speed Selector	Push switch
Speed Fine Adjustment	Knob Pich Control
Power Requirements	AC120V, 60Hz for UL, CSA AC220V, 50Hz for Europe AC240V, 50Hz for BSI, SAA

GENERAL

Power Consumption	6W
Dimensions	440(W)× 117(H)× 360(D)mm
Net Weight	3.9kg(with DUST COVER)
Accessories	45R.P.M adapter

NOTE: Design and specifications subject to change without notice for improvements.

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Controls

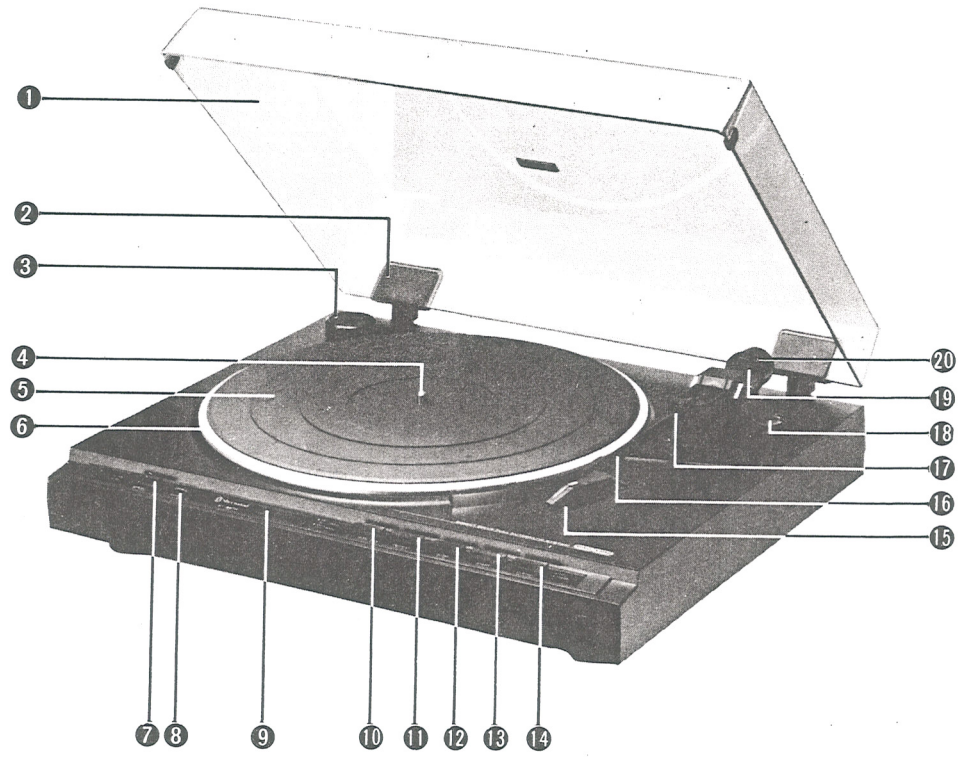


PHOTO. 1

1. DUST COVER
2. HINGE
3. 45 R. P. M ADAPTER
4. TURNTABLE SHAFT
5. RUBBER SHEET
6. TURNTABLE PLATTER
7. SPEED SELECTOR BUTTON
8. SPEED FINE ADJUSTMENT KNOB
9. STROBO LIGHT
10. RECORD SIZE BUTTON
11. REPEAT BUTTON
12. STOP BUTTON
13. START BUTTON
14. CUEING BUTTON
15. CARTRIDGE(OPTION)
16. TONEARM
17. ARM REST
18. ANTI-SKATING DEVICE
19. COUNTER RING
20. COUNTER WEIGHT

Principal Parts Location

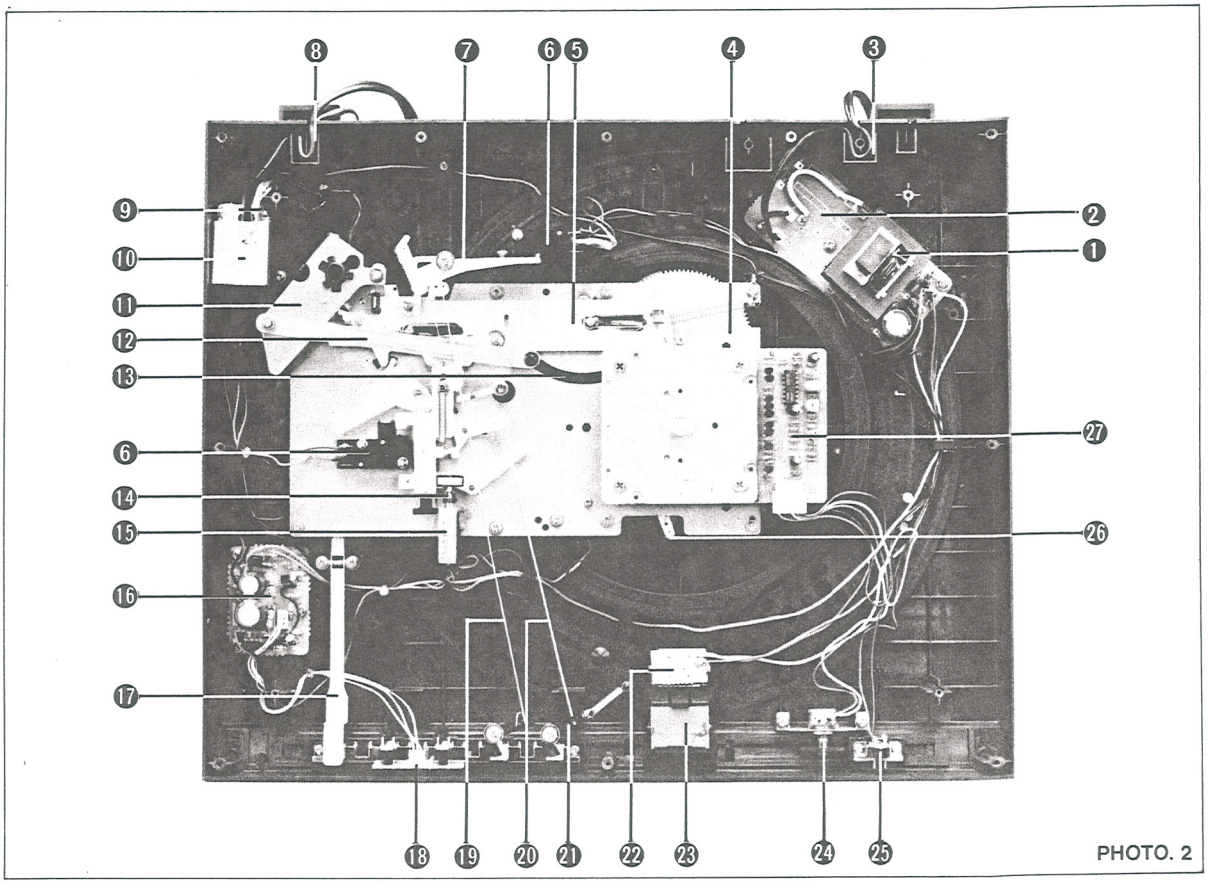


PHOTO. 2

1. POWER TRANSFORMER
2. POWER SUPPLY P.C BOARD
3. AC POWER CORD
4. BASE PLATE
5. SLIDE ARM
6. MICRO SWITCH
7. LEVER
8. PHONE CORD
9. PHONE P.C BOARD
10. SHIELD COVER
11. RESTORE LEVER
12. JOINT LEVER
13. TRIP LEVER
14. LINK SOLENOID
15. SOLENOID(START)
16. REMOCON P.C BOARD
17. CUEING LEVER
18. SWITCH P.C BOARD
19. REPEAT BAR
20. SELECT BAR (17 & 30SIZE)
21. LEVER FUNTION
22. MIRROR
23. STROBO P.C BOARD
24. PITCH CONTROL
25. SPEED SELECTOR SWITCH
26. REJECT LEVER
27. DC FG MOTOR

Disassembly Instructions

NOTES ON DISASSEMBLY

Before disassembling the unit, remove the platter and headshell with cartridge, and securely tie the arm to the armrest with string, etc.
Then gently turn the unit upside down and place it on cloth, etc. Piled up on both sides to protect the arm and cabinet from damage.

1 TOOLS REQUIRED FOR DISASSEMBLY

Philips-head screwdrivers:for M2 and M3
Slotted-head Screwdrivers:for the with 2.5~4 and 5~7.5mm

2. REMOVE CASE TOP AS FOLLOWS(Fig.1)

a. The DUST COVER remove the turntable(Fig.1)
b. Remove screws ① through ③ in fig.1 and remove the stylus pressure counterweight.
⑩ :Pan head tapping screw with flat Washer 4x57Y
⑫ :Pan head tapping screws with flat washer 4x30Y

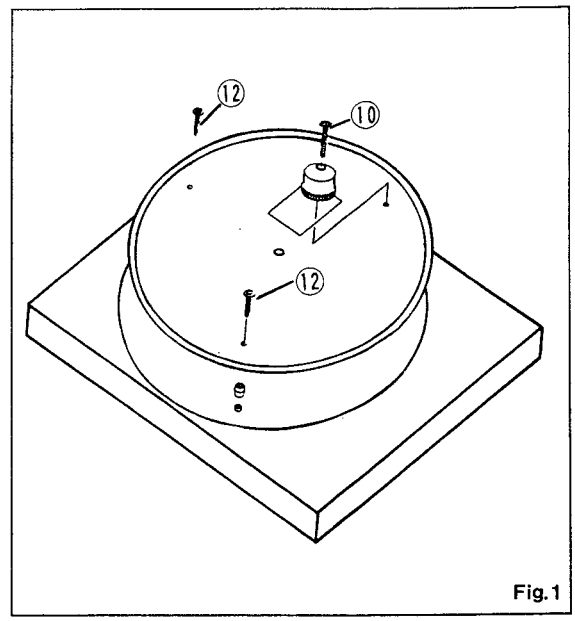


Fig.1

3. REMOVE BOTTOM COVER ⑮ AS FOLLOWS (Fig.2)

a. Place the unit upside down on a suitable bench.
b. Remove screws ⑯,⑧⑥ in fig.2 and remove the acoustic insulator feet.(RUBBER FOOT)
c. Remove screws ⑦ in fig.2 and remove the BOTTOM COVER.
⑯,⑧⑥,⑦ :Pan head tapping screw with flat washer 3x15Y

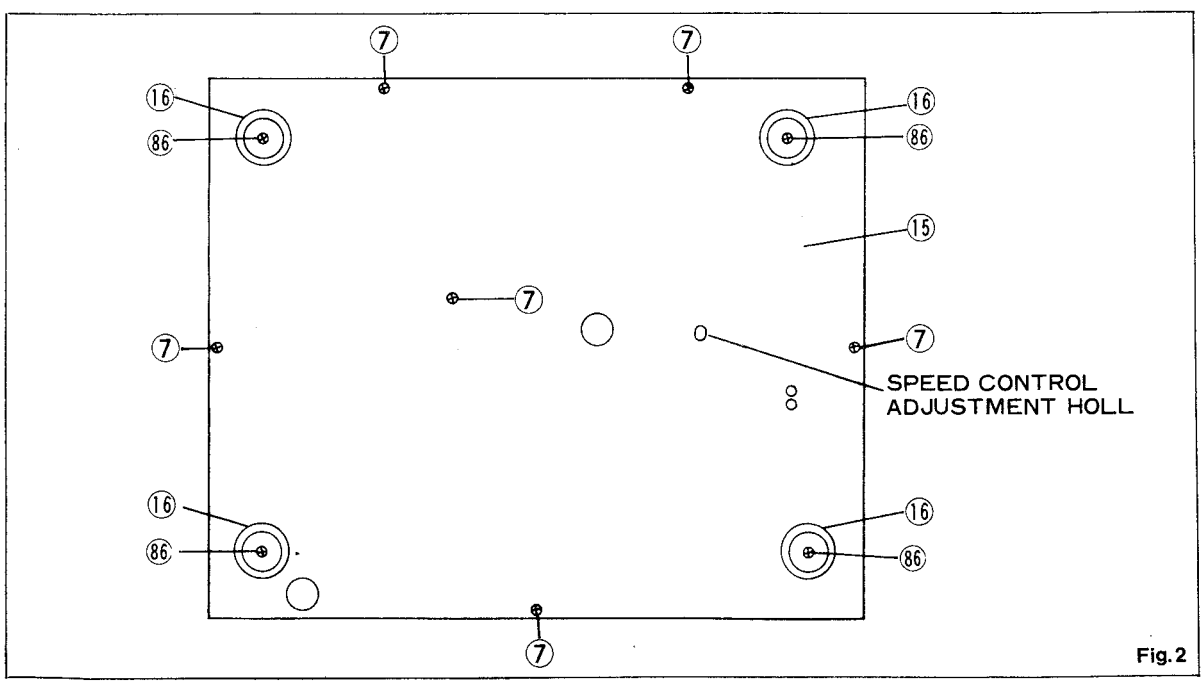
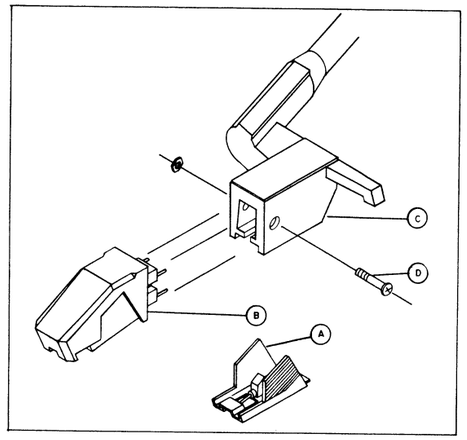


Fig.2

Mechanical Adjustment

1. CARTRIDGE INSTALLATION(Fig. 3)



Ⓐ : Stylus.
Ⓑ : Cartridge
Ⓒ : Head sheel.
Ⓓ : Locking screws.

2. STYLUS HEIGHT ADJUSTMENT(Fig.4) (Fig. 5)

When the tonearm is in the up position, the height of the stylus above the record should be about 6mm.
If it is more or less than this, loosen the adjustment screw ㊷ on the arm lifter, and adjust the hight of the arm lifter so the distonce of the stylus to the record is **6mm±1mm.**

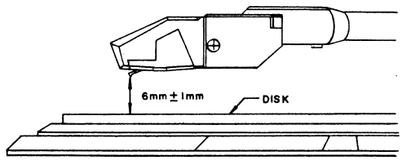


Fig. 4

3. AUTO LEAD-IN OPERATION ADJUSTMENT(Fig. 5)

Use test record(ONKYO-1000) and check to ensure that tonearm leads in within the rating specified below.

Lead-in	Test Record	Rating
30	Side 1 ①	13~23
17	Side 1 ⑤	13~23

4. AUTO-RETURN OPERATION ADJUSTMENT Ⓐ (Fig. 5)

Adjust the AUTO-RETURN OPERATION of the tonearm at 18±4 count in case of side 1 ⑥(P=3mm) and also check to ensure that it doesn't function before 26 count in case of side2 ④(P=1mm)of the test RECORD(ONKYO-1000)
*If a test record is not available, check for right auto-return operation with record in common use.

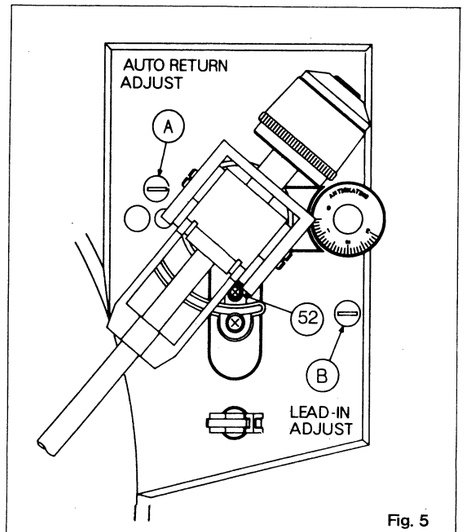


Fig. 5

5. STYLUS PRESSURE ADJUSTMENT

a. Adjust the counter weight so that the tonearm will be balanced horizontally(the cueing button must be at down position)
b. After the horizontal balancing turn the counter ring only and set to **"O(Zero)"** position in line with the marker on tonearm(do not touch the counter weight)
c. Turn the counter weight clock wise to set the reading on the gauge ring to the designated stylus pressure(grams) of your cartridge.

6. FINE ADJUSTMENT OF SPEED(Fig.6)

a. Push the 33-1/3rpm button, and watch the strobo marks.
b. When the strobo marks seem to flow to the left, the platter is rotating faster than the rated speed, turn the speed fine adjustment knob in the clockwise direction, until strobo marks come to rest.
When the strobo marks seem to flow to the right, the platter is rotating slower than the rated speed, turn the speed fine adjustment knob in the counter-clockwise direction, until the strobo marks come to rest.
c. Next. push the 45rpm button, and while watching the strobo marks, adjust the speed fine adjustment knob in the same manner as for 33-1/3rpm. described above.

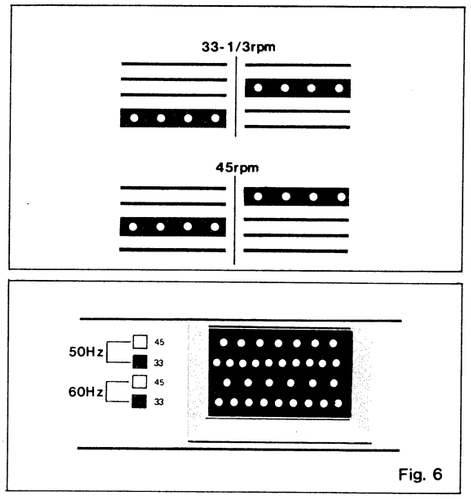


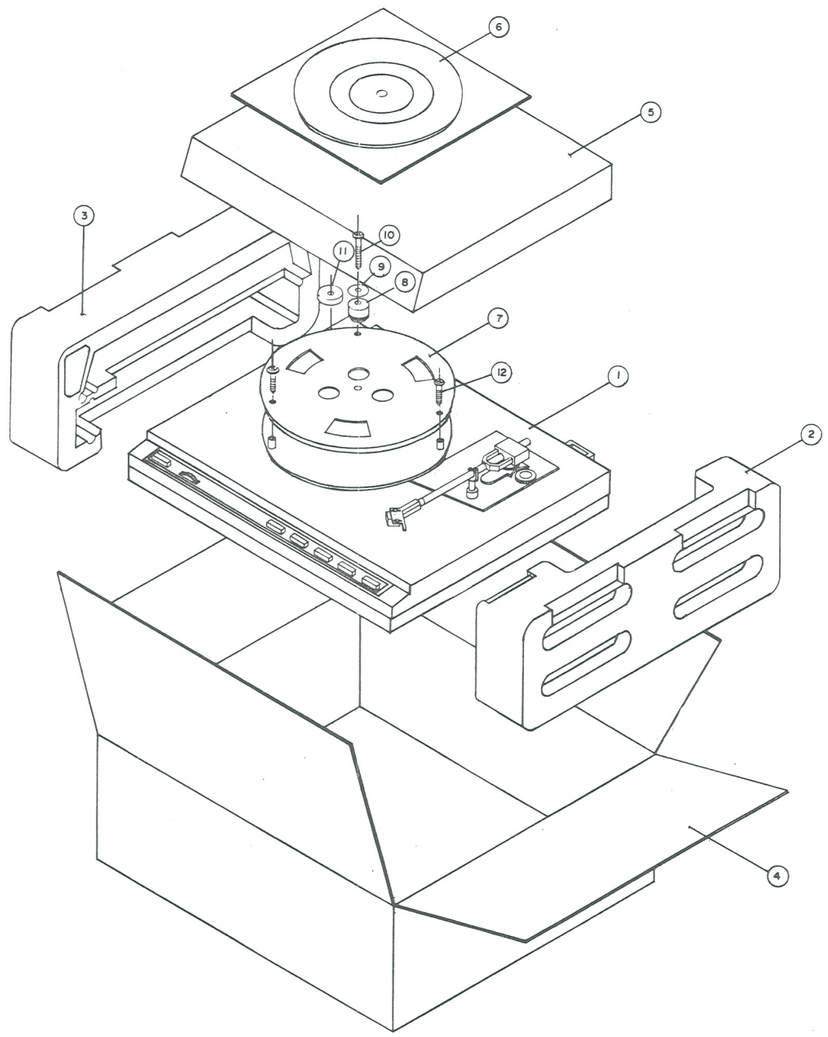
Fig. 6

※ Shock, Fire Hazard Service Test

CAUTION : After servicing this appliance and prior to returining to customer. measure the resistance beween either primary **AC** cord connector pins(with unit **NOT** connected to **AC** mains), and the face or front panel of product and controls and bottom board.
Any resistance measurement less than **1** Megohms should cause unit to be repaired or corrected before **AC** power is applied, and verified before return to user/customer.

Packing View & Parts List

NO	PARTS NO	DESCRIPTION	Q'TY	REMARK
1	046021001411	MAIN CABINET	1	
2	9722007110	R-CUSHION	1	
3	9722008110	L-CUSHION	1	
4		CARTON BOX	1	
5	8552000212	DUST COVER	1	OPTIONAL
6	7182000320	RUBBER SHEET	1	
7	047122200710	PLATTER	1	
8	5035200340	WEAGHT	1	
9	9057009200	LABLE	3	
10	8139240571	SCREW RTC 4x57Y	1	
11	17063200201	EP ADAPTOR	1	
12	8139640401	SCREW RTC 4x40Y	2	



Parts List & Top View of P.C Boards

REMOCON BOARD

Ref.No.	Parts No.	Description	Remarks
• TRANSISTORS			
Q301	2058622900	2SD947(ROHM)	
Q302	2058622900	2SD947(ROHM)	
• DIODES			
D301	2068106100	IN4002	
D302	2068106100	IN4002	
D303	2058322101	IN4148	
D304	2058322101	IN4148	
D305	2058322101	IN4148	
• CAPACITORS			
C303	3409210261	ELECTRIC CAP 1000μF/35V	
C304	3409210061	ELECTRIC CAP 10μF/35V	
C305	3409247161	ELECTRIC CAP 470μF/35V	
C306	3409210061	ELECTRIC CAP 10μF/35V	
• RESISTORS			
R301	3039104721	RES METAL OXIDE 10 ohm 1W	
R302	3009102273	RES CABON FILM 1K ohm¼W	
R303	2009102273	RES CABON FILM 10k ohm¼W	
R304	3009103273	RES CABON FILM 10k ohm¼W	
R305	3039330472	RES METAL OXIDE 33 ohm¼W	
R306	3009102273	RES CABON FILM 1k ohm¼W	
R307	2009103273	RES CABON FILM 10k ohm¼W	
R308	3009103273	RES CABON FILM 10k ohm¼W	
R309	3009473273	RES CABON FILM 47k ohm¼W	
R310	3009473273	RES CABON FILM 47k ohm¼W	

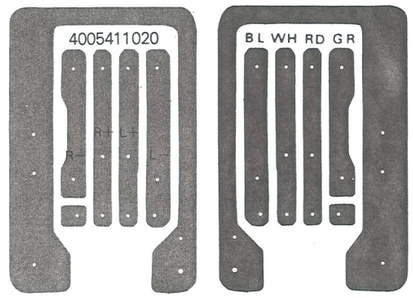
To service personnel
Make sure that only replacement part recommendgd by the manufacturer should be used when the parts marked ⚠ in schematic diagram are exchanged.
Never fail to make leakage-current or re istance measurements before returning the appliance to the customer so as to make sure that exposed parts are acceptable insulated from the supply circuit.

Note:
U,C:UL,CSA VERSION
E :EUROPE VERSION
K :KS VERSION

POWER SUPPLY BOARD 4003410500

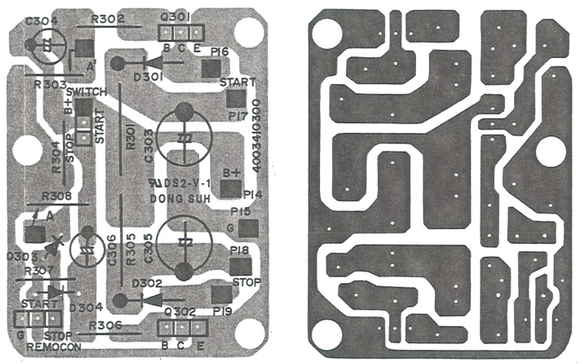
Ref No.	Parts No.	Description	Remarks
• POWER TRANSFORMER			
TRANS 1	2828050801	TRANS POWER(U.C)	
⚠	2828053601	TRANS POWER	
	2828053501	TRANS POWER(E)	
	2828053701	TRANS POWER(K)	
• DIOES			
D201	2068106100	RECTIFIER DIODE IN 4002	
D202	2068106100	RECTIFIER DIODE IN 4002	
D203	2068106100	RECTIFIER DIODE IN 4002	⚠
D204	2068106100	RECTIFIER DIODE IN 4002	
• CAPACITORS			
C201	3409210261	ELECTROLYTIC CAP 1000μF/35V	
C301	3509473530	CERAMIC CAP 0.047μF 50V	

TOP VIEW BOTTOM VIEW



P.C BOARD PHONO OUT
4005411020

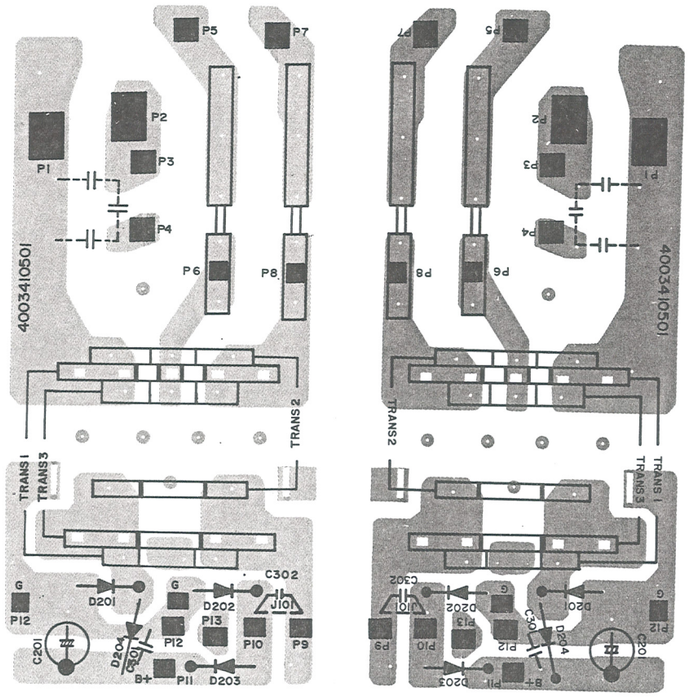
TOP VIEW BOTTOM VIEW



REMOCON BOARD
4003410300

TOP VIEW

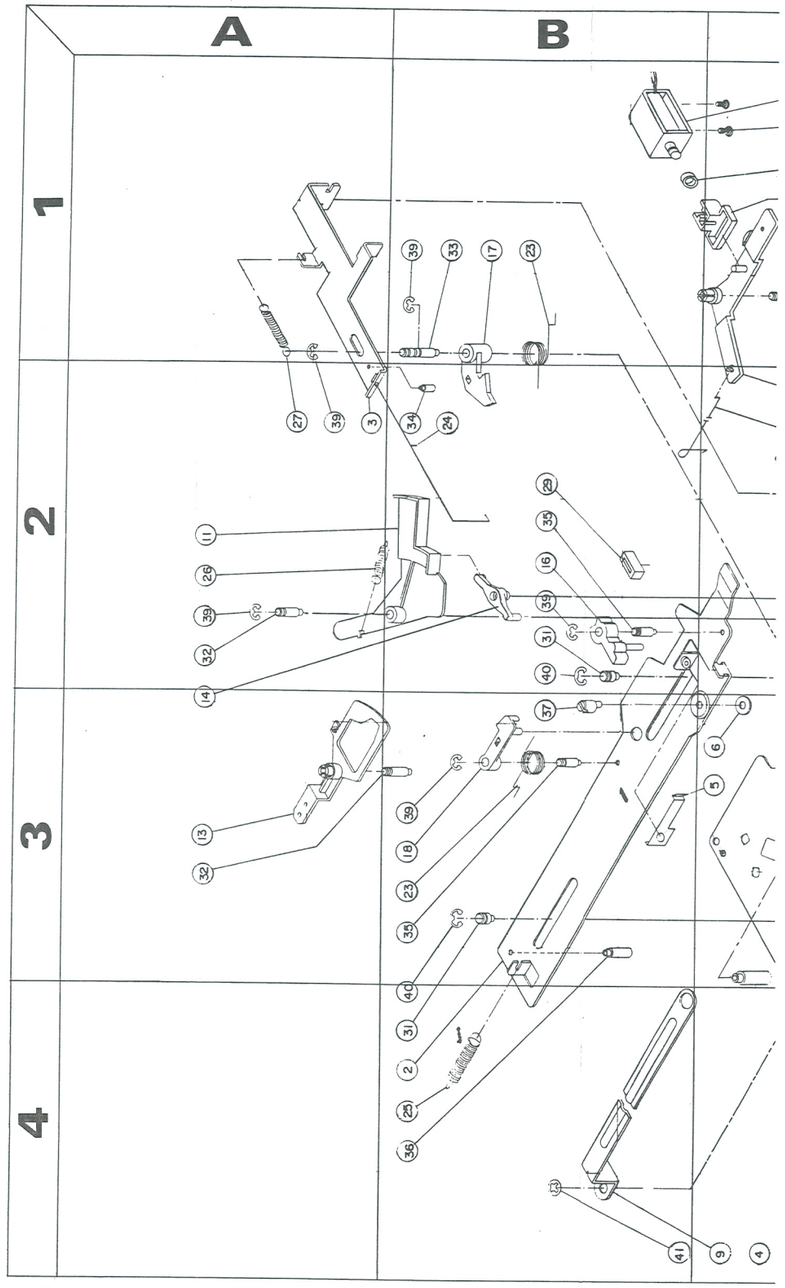
BOTTOM VIEW



POWER SUPPLY P.C BOARD
4003410500

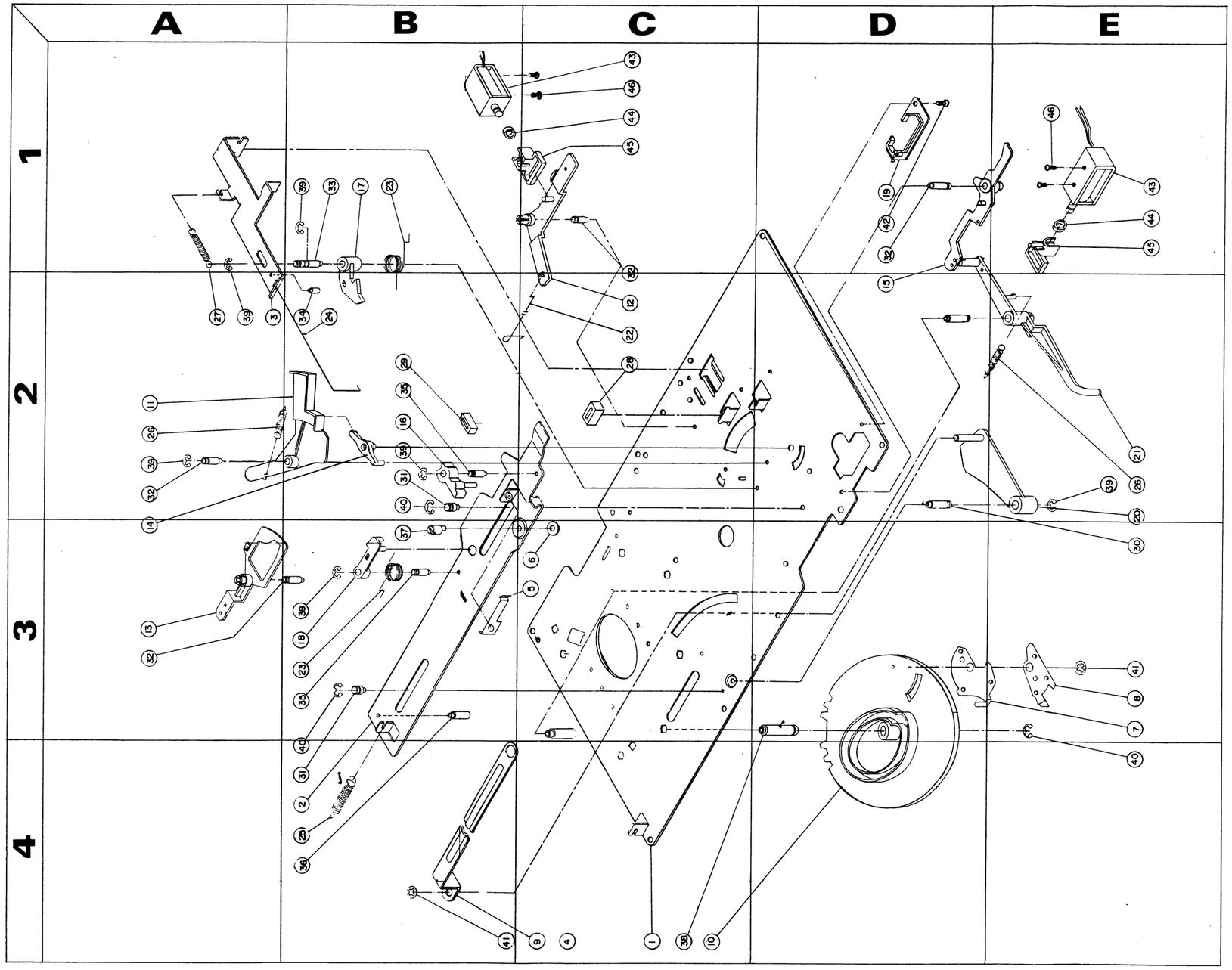
Parts List & Exploded View of Full Auto Mechanism Ass'y

Ref No.	PARTS NO	DESCRIPTION	POSITION	Q'TY
1	872001	BASE PLATE	4C	1
2	872002	SLIDE ARM	4B	1
3	872003	CONTROL PLATE	2A	1
4	873013	MOTOR STUD	4C	0
5	872006	SPRING PLATE	3C	1
6	872007	WASHER WAVE	3C	1
7	872008	LOW WATER RIPPLE POLE	3E	1
8	872009	ENGAGEMENT POLE	3E	1
9	872011	LIVER JOINT	4C	1
10	871001	GEAR MAIN	4C	1
11	871002	INDEX PLATE	2A	1
12	871003	LEVER START	2C	1
13	871005	SIZE SELECTOR	3A	1
14	871006	LEVER RELEASE	3A	1
15	871007	LEVER REPEAT	2D	1
16	871009	CAM LEAD-IN	2B	1
17	871010	HOOK	1B	1
18	871011	ARMRELEASE	3B	1
19	871012	PLATE SLIDER	1D	1
20	871013	LEVER TRIP	2E	1
21	871015	ARM STOP	2E	1
22	874005	ROD REJECT	2C	1
23	874006	SPRING HOOK	1B	1
24	874007	ROD REPEAT	2B	1
25	874008	SPRING SLIDE ARM	4B	1
26	874009	SPRING REJECT	2A	2
27	874011	SPRING CONTROL PLATE	2A	1
28	875001	CUSHION GUM	2C	1
29	875001	CUSHION SLIDE ARM	2B	1
30	873003	PIN STOP	3E	2
31	873004	PIN SLIDE	2B	2
32	873005	PIN-B	1D	4
33	873006	PIN CONTROL	1B	1
34	873008	PIN CONTROL PLATE	2B	1
35	873009	PIN-C	2B	2
36	873010	PIN SLIDE ARM	4B	1
37	873011	PIN ECCENTROL	3B	1
38	873012	SHAFT MAIN GEAR	4C	1
39	8339030011	WASHER E-RING ϕ3	1B	5
40	8335200210	WASHER E-RING ϕ4	2B	3
41	8335200210	RING CS ϕ3	3E	2
42	8109230061	SCREW # 2 BTC 3×6Y	1D	1
43	5528000420	SOLENOID	1C	2
44	6715013410	RUBBER SOLENOID	1C	2
45	7155000510	LING SOLENG SOLENOID	1C	2
46	8019126041	SCREWPM 2x 2.6x4Y	1C	3



Parts List & Exploded View of Full Auto Mechanism Ass'y

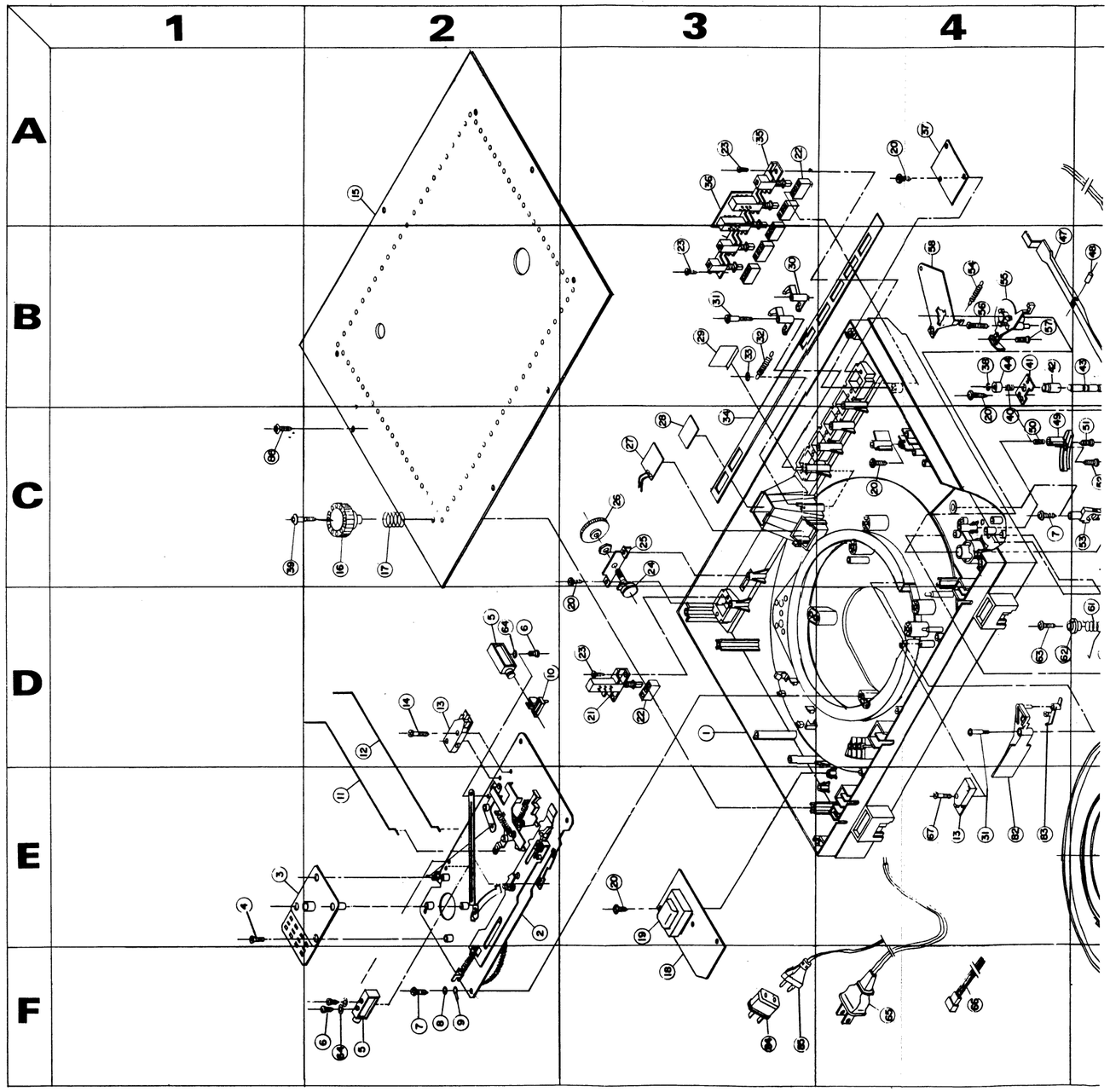
Ref No.	PARTS NO	DESCRIPTION	POSITION	Q'TY
1	872001	BASE PLATE	4C	1
2	872002	SLIDE ARM	4B	1
3	872003	CONTROL PLATE	2A	1
4	873013	MOTOR STUD	4C	0
5	872006	SPRING PLATE	3C	1
6	872007	WASHER WAVE	3C	1
7	872008	LOW WATER RIPPLE POLE	3E	1
8	872009	ENGAGEMENT POLE	3E	1
9	872011	LIVER JOINT	4C	1
10	871001	GEAR MAIN	4C	1
11	871002	INDEX PLATE	2A	1
12	871003	LEVER START	2C	1
13	871005	SIZE SELECTOR	3A	1
14	871006	LEVER RELEASE	3A	1
15	871007	LEVER REPEAT	2D	1
16	871009	CAM LEAD-IN	2B	1
17	871010	HOOK	1B	1
18	871011	ARMRELEASE	3B	1
19	871012	PLATE SLIDER	1D	1
20	871013	LEVER TRIP	2E	1
21	871015	ARM STOP	2E	1
22	874005	ROD REJECT	2C	1
23	874006	SPRING HOOK	1B	1
24	874007	ROD REPEAT	2B	1
25	874008	SPRING SLIDE ARM	4B	1
26	874009	SPRING REJECT	2A	2
27	874011	SPRING CONTROL PLATE	2A	1
28	875001	CUSHION GUM	2C	1
29	875001	CUSHION SLIDE ARM	2B	1
30	873003	PIN STOP	3E	2
31	873004	PIN SLIDE	2B	2
32	873005	PIN-B	1D	4
33	873006	PIN CONTROL	1B	1
34	873008	PIN CONTROL PLATE	2B	1
35	873009	PIN-C	2B	2
36	873010	PIN SLIDE ARM	4B	1
37	873011	PIN ECCENTROL	3B	1
38	873012	SHAFT MAIN GEAR	4C	1
39	8339030011	WASHER E-RING ϕ3	1B	5
40	8335200210	WASHER E-RING ϕ4	2B	3
41	8335200210	RING CS ϕ3	3E	2
42	8109230061	SCREW # 2 BTC 3×6Y	1D	1
43	5528000420	SOLENOID	1C	2
44	6715013410	RUBBER SOLENOID	1C	2
45	7155000510	LING SOLENG SOLENOID	1C	2
46	8019126041	SCREWPM 2x 2.6x4Y	1C	3



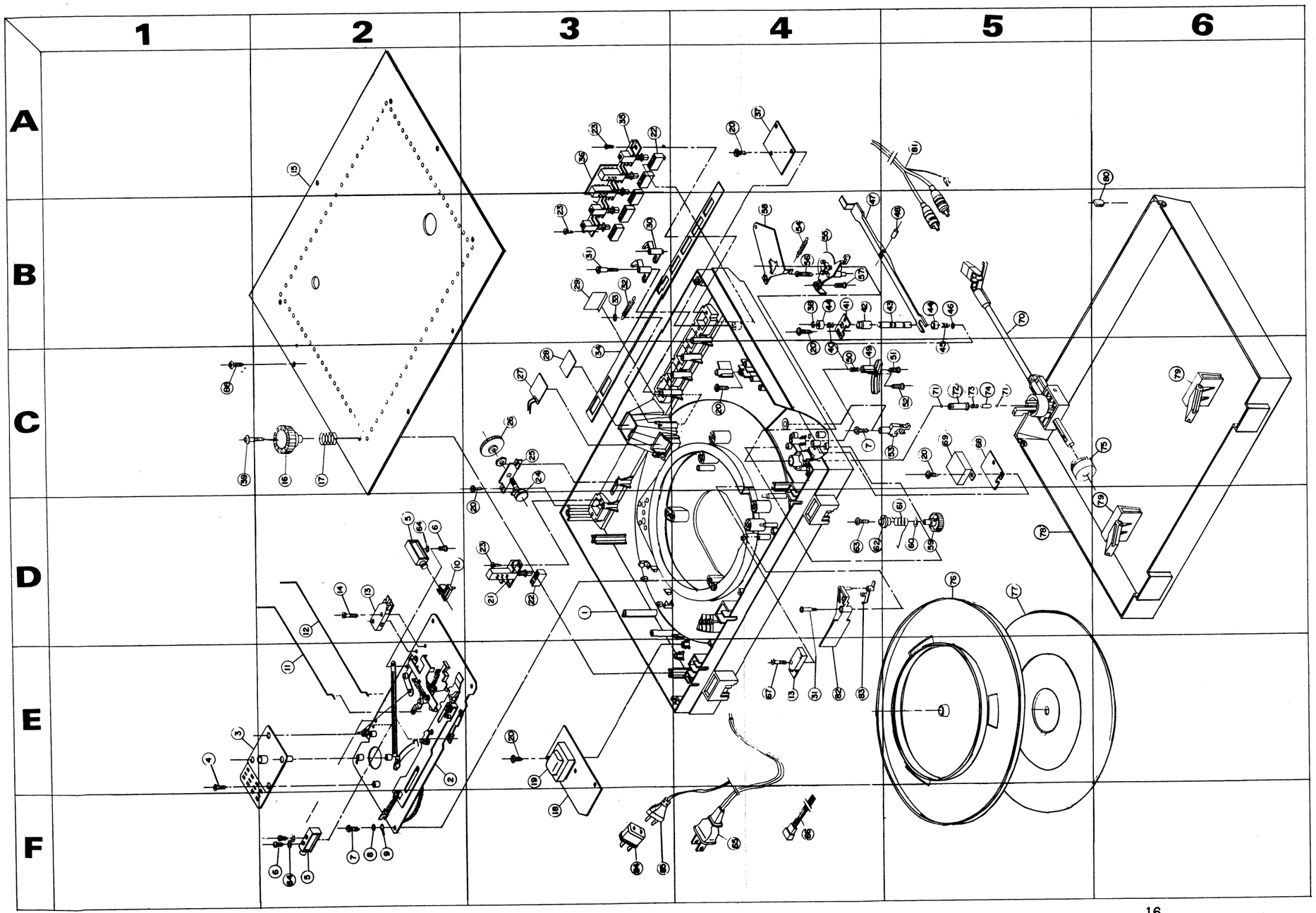
Parts List & Exploded View of Cabinet & Chassis

NO.	PARTS NO.	DESCRIPTION	Q'T Y	POSITION
1	046021001412	CABINET EXTERNAL	1	3D
2	5718002110	MECHA ASS'Y	1	2E
3	5558102130	MOTOR SS09EB	1	1E
4	8029140081	SCREW FM 4x8Y	4	1E
5	5528000410	SOLENOID	2	2F
6	8119426041	SCREW SAM 2.6x4Y	3	2F
7	8159130151	SCREW #1WPT 3x15Y	12	2F,4C
8	8419130011	WASHER SPRING ϕ3	1	2F
9	4005000810	TERMINAL LUG	1	2F
10	7155000510	LINK SOLENOID	1	2D
11	7145300210	BAR SELECT	1	2E
12	7145300220	BAR REPEAT	1	2D
13	4668000210	MICRO SWITCH AH4700	2	2D
14	8119330141	SCREW #3PTC 3x14Y	2	2D
15	6122410020	COVER BOTTOM	1	2A
16	6033100710	FOOT RUBBER	4	2C
17	6555004210	FOOT SPRING	4	2C
18	4003410500	P.C BOARD POWER SUPPLY	1	3F
19	2828050801	PWR TRANS	1	3E
20	8159130081	SCREW #1WPT 3x8Y	14	3E,4C,
21	4628006820	SWITCH PUSH	1	3D
22	8545012850	BUTTON PUSH	6	3D
23	8119130061	SCREW #1PTC 3x6Y	4	3D
24	3208017030	VR ϕ16 50K Bx1x15	1	3C
25	6505066410	BKT SWITCH	1	3C
26	8545012930	KNOB CONTROL	1	3C
27	4005411000	P.C.B STROBO	1	3C
28	8555005610	MIRROR	1	3C
29	8535002910	FILTER L.E.D	1	3B
30	7145000410	LEVER FUNCTION	2	3B
31	8155000310	SCREW SHOULDER	2	3B
32	6555302410	SPRING SELECTOR	1	3B
33	8335200110	WASHER CS RING ϕ2	2	3B
34	048533003014	INLAY FRONT	1	3C
35	4628048310	SWITCH PUSH 5FORC	1	3A
36	4003410600	P.C.B SWITCH	1	3A
37	4003410300	P.C.B REMOCON	1	4A
38	8309030011	WASHER E RING ϕ3	1	4B
39	8155000340	SCREW SHOULDER	4	1C
40	6555001520	SPRING LOWER	1	4C
41	6505027510	BKT ELEVATION	1	4B
42	7015000320	BUSHING SHAFT	1	4B
43	7005000820	SHAFT ARM ELEVATION	1	5B
44	6165006510	CAP LIFTER	2	4B,5B
45	6555001420	SPRING LIFTER UP	1	5C
46	8339040011	WASHER E RING ϕ4	1	5B
47	7143200710	LEVER CUEING	1	4B
48	7005004510	PIN CUEING	1	5B
49	7143200910	ARM ELEVATION	1	4C
50	6555006110	SPRING LIMIT	1	4C
51	8019130143	SCREW PM 3x14B	1	5C
52	8029130123	SCREW FM 3x12B	1	5C
53	6513000912	ARM HOLDER	1	5C
54	6555301140	SPRING RESTORE LEVER	1	4B
55	6513003010	STOPPER	1	4B
56	8109230161	SCREW #2 BTC 3x16Y	1	4B
57	8019130141	SCREW PM 3x14Y	1	4B
58		LEVER RESTORE	1	4B
59	8545005313	KNOB CONTROL	1	5D
60	6745000110	WASHER WAVE	1	5D
61	6555602920	SPRING ANTI-SKATING	1	5D
62	7145000310	LEVER ANTI-SKATING	1	4D
63	8159230061	SCREW #2WPTC 3x6Y	1	4D
64	8319126011	WASHER SPRING ϕ2.6	3	2F,2D
65	4308000220	CORD A.C.POWER	1	4F
66	4355022610	CONNECTOR 3P	1	4F
67	8109230181	SCREW #2BTC 3x18Y	1	4E
68	4005411020	P.C.B PHONO OUT	1	5C
69	6163101320	PLATE SHIELD	1	5C
70	5038002210	TONE ARM ASS'Y	1	5B
71	7028000310	BALL BERAING	2	5C
72	6505076610	BUSHING BEARING	1	5C
73	6555006010	SPRING TESNION	1	5C
74	6315003010	PIN BEARING	1	5C
75	5035200340	WEIGHT MAIN	1	6C
76	7122200710	PLATTER	1	5D
77	7182000510	RUBBER SHEET	1	5D
78	8552000212	COVER DUST	1	5D
79	6548001210	HINGE ASS'Y	1	6D
80	6525100310	PIN DAMPER	1	6B
81	4328200610	CORD RCA	1	5A

NO.	PARTS NO.	DESCRIPTION	Q'T Y	POSITION
82	7143101021	LEVER	1	4E
83	7143101110	LEVER HOLDER	1	4D
84	4428300410	FLUG ADAPTER	1	3F
85	4308000220	CORD A.C.POWER	1	3F
86	8159130151	SCREW #1WPT 3x15Y	5	1C



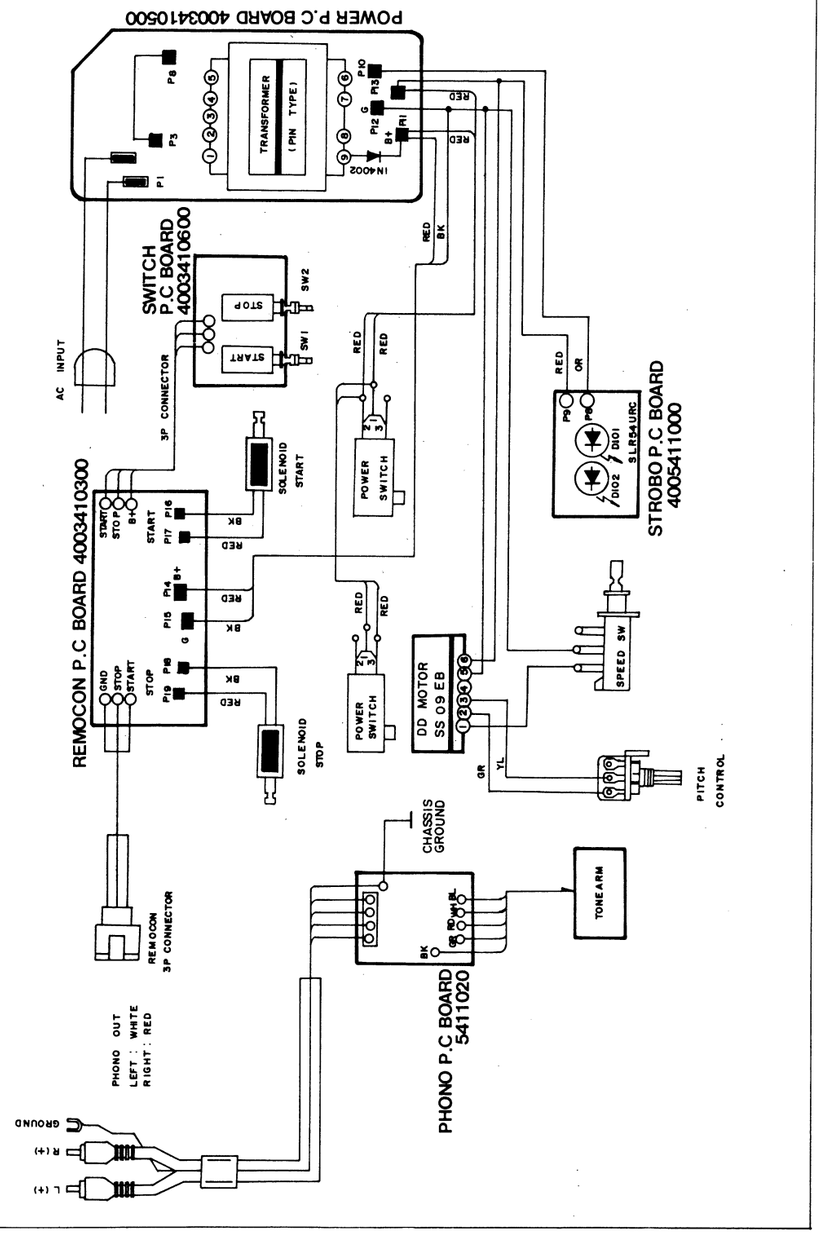
is



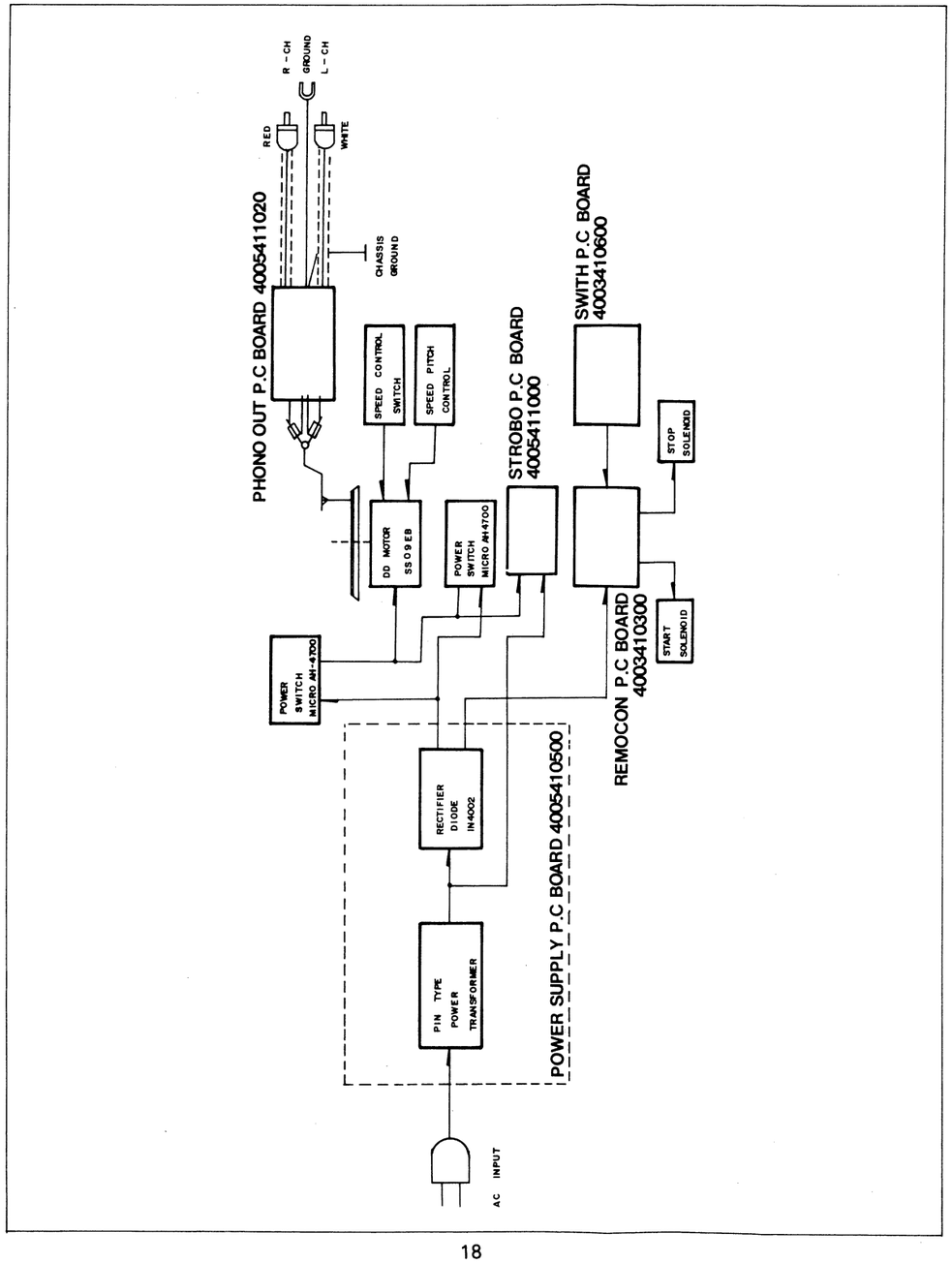
15

16

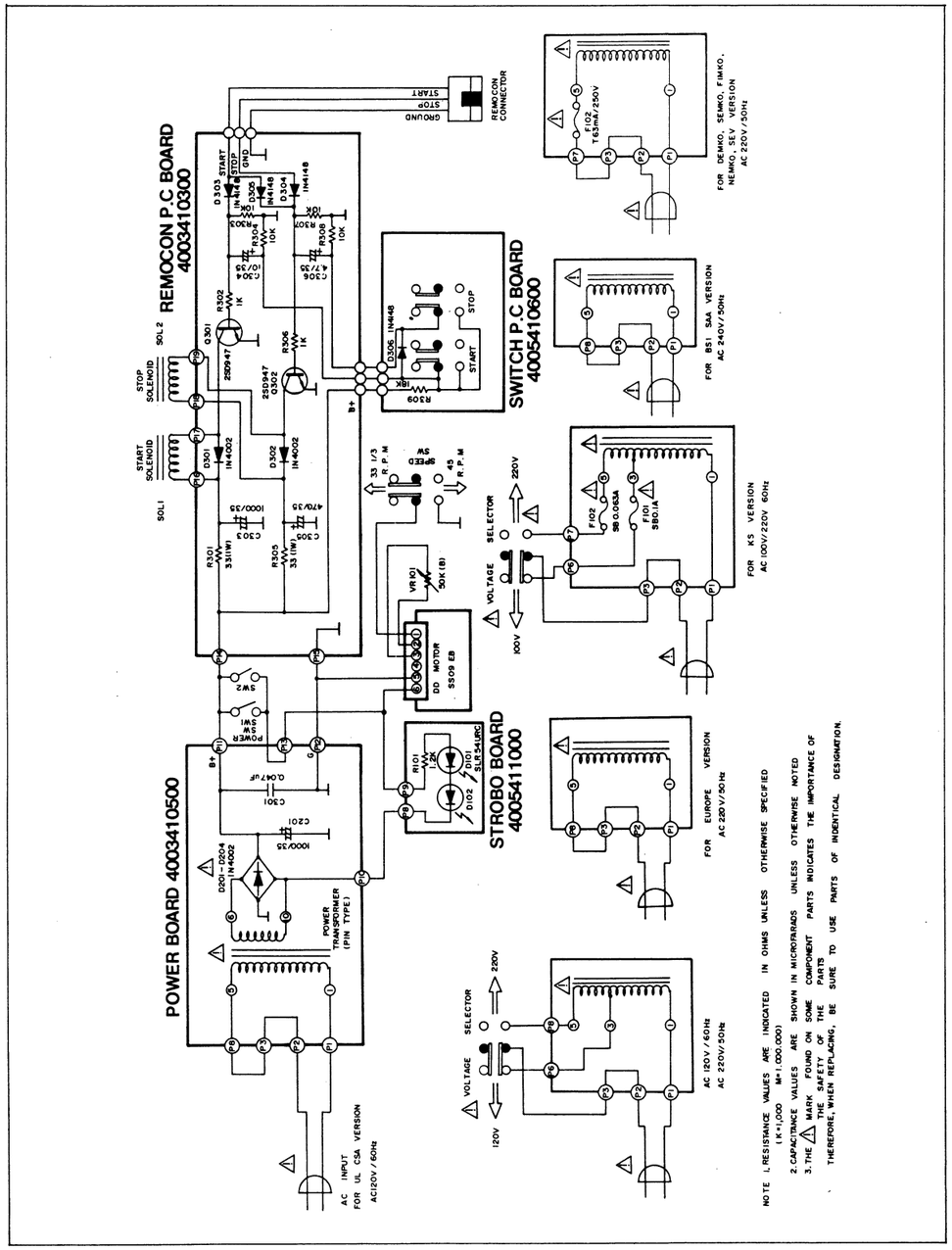
Point to Point Wiring Diagram



Block Diagram



Schematic Diagram


REMOCON P.C BOARD
4003410300
SWITCH P.C BOARD
4005410600
STROBO BOARD
4005411000
POWER BOARD 4003410500
REMOCON CONNECTOR
GROUND
STOP
START
FOR DENMKO, SEMKO, FIMKO, NEMKO, CSA VERSION AC 220V/50Hz
FOR BSI SAA VERSION AC 240V/50Hz
FOR K5 VERSION AC 100V/220V 60Hz
FOR EUROPE VERSION AC 220V/50Hz
AC 120V / 60Hz AC 220V/50Hz
AC INPUT FOR UL CSA VERSION AC120V / 60Hz
POWER TRANSFORMER (PAN TYPE)
VOLTAGE SELECTOR
120V
220V
100V
SPEED SW
33 1/3 R.P.M
45 R.P.M
DD MOTOR SS09 EB
STOP SOLENOID
START SOLENOID
SOL 2
SOL 1
B+
NOTE 1. RESISTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED (K=1,000 M=1,000,000)
2. CAPACITANCE VALUES ARE SHOWN IN MICROFARADS UNLESS OTHERWISE NOTED
3. THE ⚠ MARK FOUND ON SOME COMPONENT PARTS INDICATES THE IMPORTANCE OF THE SAFETY OF THE PARTS
THEREFORE, WHEN REPLACING, BE SURE TO USE PARTS OF INDENTICAL DESIGNATION.